

CLAIMS

Having thus described the invention what is claimed is:

- 5 1. A sensor output signal conditioning circuit comprising:
 - a DC-coupled detector that converts a sensor signal into a discrete level signal;
 - an AC-coupled detector that converts the sensor signal into a discrete level signal, wherein said AC-coupled detector includes a dynamic DC
 - 10 threshold input; and
 - a disable device that inhibits the DC-coupled detector responsive to the dynamic DC threshold input reaching a specified threshold voltage level.
- 15 2. The sensor output signal conditioning circuit of claim 1, further comprising an amplifier coupled between a magnetic sensor and said AC-coupled and DC-coupled detectors, wherein said amplifier amplifies a sensor signal from the magnetic sensor to produce an amplified sensor signal applied as inputs to said AC-coupled and DC-coupled detectors.
- 20 3. The sensor output signal conditioning circuit of claim 1, wherein said AC-coupled detector exhibits high-pass filter characteristics with respect to the sensor signal.
- 25 4. The sensor output signal conditioning circuit of claim 1, wherein said AC-coupled detector is a voltage comparator that compares a sensor signal input with the dynamic DC threshold input.
- 30 5. The sensor output signal conditioning circuit of claim 1, wherein said DC-coupled detector is a comparator that compares a sensor signal input with a static DC threshold input.

6. The sensor output signal conditioning circuit of claim 5, wherein said disable device produces an inhibit signal for inhibiting switching of the DC-coupled detector comparator.
- 5 7. The sensor output signal conditioning circuit of claim 6, wherein said disable device is an amplifier that senses the voltage level at the dynamic DC threshold input and generates the inhibit signal responsive to the sensed voltage level reaching a specified threshold.
- 10 8. The sensor output signal conditioning circuit of claim 7, wherein said disable device amplifier comprises:
 a sense input coupled to the dynamic DC threshold input; and
 an output coupled to the sensor signal input line of said DC-coupled detector.
- 15 9. The sensor output signal conditioning circuit of claim 1, further comprising a dynamic DC threshold generator for producing the dynamic DC threshold input.
- 20 10. The sensor output signal conditioning circuit of claim 9, wherein said dynamic DC threshold generator comprises a low-pass filter.
11. The sensor output signal conditioning circuit of claim 10, wherein said low-pass filter has a cutoff frequency of approximately 0.16 Hz.
- 25 12. The sensor output signal conditioning circuit of claim 11, wherein said low-pass filter comprises:
 a resistor coupled between an analog sensor signal input and the dynamic DC threshold input of said AC-coupled detector; and
30 a capacitor coupled between the dynamic DC threshold input and ground.

13. The sensor output signal conditioning circuit of claim 12, wherein said resistor is approximately 1.0 Mega-ohm and said capacitor is approximately 1.0 microfarad.

- 5 14. A sensor output signal conditioning device comprising:
an amplifier that amplifies a sensor output signal; and
a switched-mode detector having a DC-coupled output mode wherein
a DC-coupled detector converts the amplified sensor output signal into a
discrete level signal that is output from said switched-mode detector, said
10 switched mode detector further having an AC-coupled output mode wherein
an AC-coupled detector converts the amplified sensor output signal into a
discrete level signal that is output from said switched-mode detector, wherein
the output of said switched-mode detector switches from the DC-coupled
output mode to the AC-coupled output mode responsive to a startup delayed
15 threshold input reaching a specified voltage level.

15. The sensor output signal conditioning device of claim 14, wherein said startup delayed threshold input is the threshold input of said AC-coupled detector.

- 20 16. A signal conditioning circuit for converting a sensor signal into a discrete level output signal, said signal conditioning circuit comprising:
a DC-coupled detector for converting the sensor signal into a discrete level signal output from the signal conditioning circuit;
25 an AC-coupled detector for converting the sensor signal into a discrete level signal output from the signal conditioning circuit; and
a device that selectively inhibits the discrete level output from said DC-coupled detector after a specified startup delay.

30 17. The signal conditioning circuit of claim 16, wherein said DC-coupled detector comprises a voltage comparator.

18. The signal conditioning circuit of claim 17, wherein said DC-coupled detector voltage comparator includes a sensor signal input and a static DC threshold input.
- 5 19. The signal conditioning circuit of claim 17, wherein said device generates an inhibit signal that inhibits switching of said DC-coupled detector voltage comparator.
- 10 20. The signal conditioning circuit of claim 16, wherein said AC-coupled detector includes a sensor signal input and a dynamic DC threshold input, said AC-coupled detector comparing the sensor signal received at the sensor signal input with the threshold voltage level at the dynamic DC threshold input.
- 15 21. The signal conditioning circuit of claim 20, wherein said AC-coupled detector comprises a voltage comparator receiving the sensor signal at the sensor signal input and receiving the threshold voltage level at the dynamic DC threshold input.
- 20 22. The signal conditioning circuit of claim 21, wherein said AC-coupled detector further comprises a low-pass filter coupled to the dynamic DC threshold input.